

### The life of inland waters

This book<sup>2</sup> attempts to present in an elementary manner a comprehensive view of our fresh waters as the abode of a teeming multitude of organisms. The viewpoint is essentially ecological, with a background of economic possibilities. The first portion of the volume consists of an introduction to the subject, that is to the science of limnology, including a historical sketch of important epochs in its development and a glance at the present facilities for study, which include some 30 biological field stations in the United States and Canada. There follows a discussion of water with respect to its transparency, temperature, and circulation, as well as its gas, mineral, and organic content. The various types of aquatic habitats are then presented. These include ponds, lakes, streams, marshes, and bogs.

In the consideration of aquatic organisms, 57 pages are devoted to plant and 83 to animal forms. Concerning the latter the reviewer will venture no opinion, but the paragraphs on plant life seem interesting and accurate, but so general that they would need to be supplemented by good teaching in the field to accomplish their purpose. In such an ecological textbook the adjustment of organisms to the varied conditions of aquatic life under which they exist, and the interaction of the aquatic communities are, of course, the most important parts of the book, and considering the immensity of the field to be covered and the complexity of the material it would seem that the authors have been very successful. Still the book will have to be supplemented by a teacher with an unusually wide acquaintance with both plant and animal life in order to be the success which the subject deserves.

The final chapter upon the possibilities of water crops and water culture reveals economic possibilities of no small importance. The entire volume is in non-technical language, the material is well organized, and the contents may be appreciated by a person with a minimum of scientific attainment, while at the same time few teachers will find themselves sufficiently equipped to teach the entire field effectively. Good illustrations and a fairly extensive bibliography add to the value of the volume.—GEO. D. FULLER.

### MINOR NOTICES

**Fruit diseases.**—A recent textbook by HESLER and WHETZEL<sup>3</sup> discusses the subject from an essentially New England viewpoint, omitting from all consideration fruits and diseases that are of major interest in many states and nearly all that are of interest in our tropical possessions. The discussion of such diseases as are treated is in many instances from a local viewpoint rather

<sup>2</sup> NEEDAM, JAMES G., and LLOYD, J. T., *The life of inland waters*. 8vo. pp. 438. figs. 244. New York: Comstock Co. 1916. \$3.00.

<sup>3</sup> HESLER, LEX R., and WHETZEL, HERBERT RICE, *Manual of fruit diseases*. 12mo. pp. xx+462. figs. 126. New York: Macmillan. 1917.



than of a general nature. This is especially obvious in the treatment of such diseases as apple rust and pear blight. The illustrations are poor. Such figures as 29, 32, 40, 69, 76, 83, 86, 92, 98 are not worthy of publication. Throughout the book there is a tendency to present various conflicting theories and arguments concerning a given disease, with the result that often the real conclusions, if any, are buried or obscured. This really is the result of the status of pathology, of insufficient knowledge of the diseases in question, but the value of such presentation to the student and especially to the practical grower is doubtful. Assuming a central New York viewpoint and interest, the book may be said to give a very complete presentation of what is known of fruit diseases, with valuable lists of references to original sources of information. It is, as the authors announce, the first American text to deal wholly with diseases of fruits, and here for the first time are brought together with comprehensive discussion many obscure and little-known diseases. The facts presented are well selected, and the book constitutes a valuable addition to the literature of plant diseases.—F. L. STEVENS.

**North American Flora.**—The second part of Vol. 21 contains the presentation of Amaranthaceae by STANDLEY,<sup>4</sup> who recognizes 166 species distributed among 21 genera. *Amaranthus* is much the largest genus, with 42 species, followed by *Iresine* with 32, *Achyranthes* with 31, and *Gomphrena* with 15. These 4 genera contain 120 of the 166 species, the remaining 46 being distributed among 17 genera. New species, 10 in number, are described in *Amaranthus* (4), *Acnida*, *Froelichia*, *Achyranthes*, *Gomphrena* (2), and *Iresine*.—J. M. C.

**North American Flora.**—The second part of Vol. 10 contains the presentation of Agaricales by MURRILL,<sup>5</sup> including the subtribe Pluteanae. The largest genera are *Entoloma* (63 spp.), *Pluteus* (57 spp.), and *Leptoniella* (43 spp.). Ten genera are presented, and 109 new species are distributed as follows: *Claudopus*, *Eccilia* (9), *Leptoniella* (14), *Nolanea* (11), *Pleuropus* (7), *Entoloma* (34), *Pluteus* (30), *Chamaeota*, and *Volvariopsis* (2).—J. M. C.

## NOTES FOR STUDENTS

**Anthocyanins.**—Since the review of the anthocyan (anthocyanin) pigments by CROCKER,<sup>6</sup> much of interest from the chemical point of view has appeared. As pointed out by CROCKER, these facts are of marked significance to all botanists. Students interested in the general problems of anthocyanins (botanical, chemical, and genetic) will find much of value in Miss WHELDALE'S book.<sup>7</sup>

<sup>4</sup> STANDLEY, PAUL C., North American Flora 21:part 2. pp. 95-169. (Chenopodiales) Amaranthaceae. New York Botanic Garden. 1917.

<sup>5</sup> MURRILL, W. A., North American Flora 10:part 2. pp. 77-144. Agaricales: Agaricaceae (pars); Agariceae (pars). New York Botanic Garden. 1917.

<sup>6</sup> CROCKER, WM., BOT. GAZ. 61:349. 1916.

<sup>7</sup> WHELDALE, M., The anthocyanin pigments of plants. Cambridge University Press. 1916.